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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,458	10/03/2003	William C. Albertson	GP-303183	3335

7590 11/07/2005

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EXAMINER

ZEC, FILIP

ART UNIT	PAPER NUMBER
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3744

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,458

Applicant(s)

ALBERTSON, WILLIAM C.

Examiner

Filip Zec

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication 2001/0017039 to Weimer, in view of U.S. Patent 6,116,040 to Stark. Weimer discloses applicant's basic inventive concept, a phase-change cooling system for a vehicle (20, FIG. 1), comprising an electronic control device (28) for receiving power from a power source (21) via an electric power cable [0064], a condenser of an air conditioning system of the vehicle (53, FIG. 2) thermally communicating (56, FIG. 2) with said electronic control device, said electronic device comprising a housing (29) made of conductive metal [0063] and at least one semiconducting switch (23) within said housing, said condenser having a thermal interface (30) between the housing and a coolant, said interface made of conductive metal [0069], said condenser having a coolant disposed therein [0024], wherein said coolant has a liquid and a vapor phase [0024], substantially as claimed with the exception of stating that the condenser thermally communicates with said electronic device due to the phase-change of coolant in said condenser. Stark shows a condenser (13, FIG. 3), which thermally communicates (30) with an electronic device (27) to be old in the air-conditioning art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made from the teaching of Stark to modify the system of Weimer, by using the refrigerant directly from the

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condenser (via pipes 36 and 34, FIG. 3) in order to utilize the warm liquid refrigerant to cool the electronic device being at a higher temperature and improve the efficiency of the system (col 4, lines 10-15).

3. Claims 9-11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication 2001/0017039 to Weimer, in view of U.S. Patent 6,116,040 to Stark, as applied to claims 1 and 12 above, and further in view of U.S. Patent 5,974,812 to Katai et al. Weimer in view of Stark discloses applicant's basic inventive concept, a phase-change cooling system for a vehicle which cools an electronic device via liquid refrigerant directly from the condenser, substantially as claimed with the exception of stating that the condenser comprises a lower and upper portion, wherein a lower portion contains the liquid refrigerant and the upper portion contains vapor refrigerant. Katai shows a condenser (8, FIG. 1) comprising a lower and an upper portion, wherein a lower portion contains the liquid refrigerant and the upper portion contains vapor refrigerant (col 4, lines 23-28) to be old in the air-conditioning art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made from the teaching of Katai to modify the system of Weimer in view of Stark, by using a condenser which contains a lower and an upper portion, wherein a lower portion contains the liquid refrigerant and the upper portion contains vapor refrigerant in order to separate liquid refrigerant and extract its heat for cooling purposes other than expansion in an evaporator (col 2, lines 42-49), by having a thermal interface (30, from Stark) between said electronic device (27, from Stark) and the lower portion of said condenser (lower portion of 8, from Katai).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 6,772,603 to Hsu, John Sheungchun et al. teaches methods and apparatus for thermal management of vehicle systems and components.

U.S. Patent 5,878,589 to Tanaka, Masaya et al. teaches a vehicular air conditioning system for electric vehicles.

Japanese Patent JP 05-215457A to Takahashi, Kazuhiro et al. teaches machine room structure for refrigerating.

Japanese Patent Application Publication 2001-85883 to Hayashi, Kenichi et al. teaches a device for cooling electronics.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Filip Zec whose telephone number is (571) 272-4815. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel can be reached on (571) 272-4808. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Filip Zec
Examiner
Art Unit 3744


CHERYL TYLER
SUPERVISORY PATENT EXAMINER

FZ